AUTHOR INDEX

Angel, David L., Cleaning of chromium on glass photomasks and reticles, 211
Ashkenaz, Scott, Cleaning of chromium on glass photomasks and reticles, 211
Batchelder, Tom, Simple metal lift-off process for 1 micron Al/5% Cu lines, 143
Bracken, R. C., Automatic defect detection: instrument comparison and application, 76
Campbell, P. A., Plasma etching 1μ phosphorous-doped polysilicon geometries at 30 kilocycles, 203
Chalmeton, V., Simultaneous transfer of a fine pattern on two complementary or identical replicas by x-ray lithography, 70
Chang, M. S., Multilevel resist for photolithography utilizing an absorbing dye: simulation and experiment, 128
Chang, T. S., Comparison of electron beam and optical projection lithography in the region of one micrometer, 117
Cooper, R., Pulsed plasma source for x-ray lithography, 52
Cordes, W. F., III, Resist materials for high resolution photolithography, 164
Dey, Jim, Precision wafer stepper utilizing a two-dimensional optical encoder, 29
Economou, N. P., Pulsed plasma source for x-ray lithography, 52
Flanders, D. C., Pulsed plasma source for x-ray lithography, 52
Gonzales, A. J., Electron beam resists and photoresist behavior of polychrome positive resist, 182
Griffing, B. F., Deep-ultraviolet (UV) source for two-level resist technology, 136
Gustafson, Steven C., Simulation of edge location error, 122
Gwozdz, Peter S., Positive versus negative: a photoresist analysis, 156
Handorf, Philip C., Simulation of edge location error, 122
Helbert, J. N., Electron beam resist and photoresist behavior of polychrome positive resist, 182
Hembree, Gary, Quantitative sub-micrometer linewidth determination using electron microscopy, 100
Hershel, Ron, Pellicle protection of integrated circuit (IC) masks, 23
Hockey, Mary Ann, Microwave curing: Is it a reality:, 192
Jain, P. K., Factors affecting linewidth control including multiple wavelength exposure and chromatic aberration, 110
Jensen, Stephen, Quantitative sub-micrometer linewidth determination using electron microscopy, 100
Johnson, P. D., Deep-ultraviolet (UV) source for two-level resist technology, 136
Johnson, Paul H., Cleaning of chromium on glass photomasks and reticles, 211
Kadota, Kazuya, New positive photoresist for critical dimension control, 173
Kato, T., Mask fabrication using electron beam exposure system, 62
Küyel, B., Prospects of a plasma focus device as an intense x-ray source for fine line lithography, 44
Kyser, D. F., Comparison of electron beam and optical projection lithography in the region of one micrometer, 117
LaRue, J., Single and dual wavelength exposure of photoresist, 17
Le Jean, Y., Simultaneous transfer of a fine pattern on two complementary or identical replicas by x-ray lithography, 70
Leonard, R. F., Resist materials for high resolution photolithography, 164
———, Puddle development of positive photoresists, 187
Liu, E. D., Multilevel resist for photolithography utilizing an absorbing dye: simulation and experiment, 128
Long, Mary L., Toward submicron lithography, 2
Lynch, Gary, Automated wafer flatness characterization system, 92
Marchiando, Jay, Quantitative sub-micrometer linewidth determination using electron microscopy, 100
Matthews, S. M., Pulsed plasma source for x-ray lithography, 52
McFarland, J. A., Puddle development of positive photoresists, 187
Morgan, Stephen, Automated wafer flatness characterization system, 92
Morimoto, H., Mask fabrication using electron beam exposure system, 62
Neureuther, A. R., Factors affecting linewidth control including multiple wavelength exposure and chromatic aberration, 110
Norton, J. F., Deep-ultraviolet (UV) source for two-level resist technology, 136
Oldham, W. G., Factors affecting linewidth control including multiple wavelength exposure and chromatic aberration, 110
O'Toole, M. M., Multilevel resist for photolithography utilizing an absorbing dye: simulation and experiment, 128
Rammos, E., Simultaneous transfer of a fine pattern on two complementary or identical replicas by x-ray lithography, 70
Reeves, A. E., Automatic defect detection: instrument comparison and application, 76
Reid, Lee, Automated wafer flatness characterization system, 92
Rizvi, S. A., Automatic defect detection: instrument comparison and application, 76
Roth, I., Pulsed plasma source for x-ray lithography, 52
Roussel, Jeanne M., Submicron optical lithography?, 9
Sarkozy, R. F., Plasma etching 1μ phosphorous-doped polysilicon geometries at 30 kilocycles, 203
Seese, P. A., Electron beam resist and photoresist behavior of polychrome positive resist, 182
Shigetomi, A., Mask fabrication using electron beam exposure system, 62
Shimizu, Shinji, New positive photoresist for critical dimension control, 173
Sobczak, Zbigniew, Automated wafer flatness characterization system, 92
Stringfield, R., Pulsed plasma source for x-ray lithography, 52
Suzuki, Akiyoshi, Laser scanning autoalignment in projection system, 35
Swyt, Dennis, Quantitative sub-micrometer linewidth determination using electron microscopy, 100
Taki, Youichi, New positive photoresist for critical dimension control, 173
Ting, C. H., Single and dual wavelength exposure of photoresist, 17
———, Comparison of electron beam and optical projection lithography in the region of one micrometer, 117
van Pelt, Pieter, Processing of deep-ultraviolet (UV) resists, 150
Walker, C. C., Electron beam resist and photoresist behavior of polychrome positive resist, 182
Watakabe, Y., Mask fabrication using electron beam exposure system, 62
Zavecz, Terrence E., Comprehensive test sequence for the electron beam exposure system, 55

SUBJECT INDEX

Al/5% Cu lines, simple metal lift-off process for 1 micron, 143
Aberration, factors affecting linewidth control including multiple wavelength exposure and chromatic, 110
Absorbing dye: simulation and experiment, multilevel resist for photolithography utilizing an, 128
Affecting linewidth control including multiple wavelength exposure and chromatic aberration, factors, 110
Analysis, positive versus negative: a photoresist, 156
Application, automatic defect detection: instrument comparison and, 76
Autoalignment in projection system, laser scanning, 35
Automated wafer flatness characterization system, 92
Automatic defect detection: instrument comparison and application, 76

Beam exposure system, mask fabrication using electron, 62

Beam and optical projection lithography in the region of one micrometer, comparison of electron, 117
Beam resist and photoresist behavior of polychrome positive resist, electron, 182
Behavior of polychrome positive resist, electron beam resist and photoresist, 182

Characterization system, automated wafer flatness, 92
Chromatic aberration, factors affecting linewidth control including multiple wavelength exposure and, 110
Chromium on glass photomasks and reticles, cleaning of, 211
Circuit (IC) masks, pellicle protection of integrated, 23
Cleaning of chromium on glass photomasks and reticles, 211
Comparison and application, automatic defect detection: instrument, 76
Comparison of electron beam and optical projection lithography in the region of one micrometer, 117
Complementary or identical replicas by x-ray lithography, simultaneous transfer of a fine pattern on two, 70
Comprehensive test sequence for the electron beam exposure system, 55
Control including multiple wavelength exposure and chromatic aberration, factors affecting linewidth, 110
Control, new positive photoresist for critical dimension, 173
Critical dimension control, new positive photoresist for, 173
Cu lines, simple metal lift-off process for 1 micron A1/5%, 143
Curing: Is it a reality?, microwave, 192

Deep-ultraviolet (UV) resists, processing of, 150
Deep-ultraviolet (UV) source for two-level resist technology, 136
Defect detection: instrument comparison and application, automatic, 76
Detection: instrument comparison and application, automatic defect, 76
Determination using electron microscopy, quantitative sub-micrometer linewidth, 100
Development of positive photoresists, puddle, 187
Device as an intense x-ray source for fine line lithography, prospects of a plasma focus, 44
Dimension control, new positive photoresist for critical, 173
Doped polysilicon geometries at 30 kilocycles, plasma etching 1 μ phosphorous-, 203
Dual wavelength exposure of photoresists, single and, 17
Dye: simulation and experiment, multilevel resist for photolithography utilizing an absorbing, 128

Edge location error, simulation of, 122
Electron beam exposure system, comprehensive test sequence for the, 55
Electron beam exposure system, mask fabrication using, 62
Electron beam and optical projection lithography in the region of one micrometer, comparison of, 117
Electron beam resist and photoresist behavior of polychrome positive resist, 182
Electron microscopy, quantitative sub-micrometer linewidth determination using, 100
Encoder, precision wafer stepper utilizing a two-dimensional optical, 29
Error, simulation of edge location, 122
Etching 1 μ phosphorous-doped polysilicon geometries at 30 kilocycles, plasma, 203
Experiment, multilevel resist for photolithography utilizing an absorbing dye: simulation and, 128
Exposure and chromatic aberration, factors affecting linewidth control including multiple wavelength, 110
Exposure of photoresist, single and dual wavelength, 17
Exposure system, comprehensive test sequence for the electron beam, 55
Exposure system, mask fabrication using electron beam, 62

Fabrication using electron beam exposure system, mask, 62
Factors affecting linewidth control including multiple wavelength exposure and chromatic aberration, 110
Fine line lithography, prospects of a plasma focus device as an intense x-ray source for, 44
Fine pattern on two complementary or identical replicas by x-ray lithography, simultaneous transfer of a, 70
Flatness characterization system, automated wafer, 92
Focus device as an intense x-ray source for fine line lithography, prospects of a plasma, 44

Geometries at 30 kilocycles, plasma etching 1 μ phosphorous-doped polysilicon, 203
Glass photomasks and reticles, cleaning of chromium on, 211

High resolution photolithography, resists materials for, 164

(IC) masks, pellicle protection of integrated circuit, 23
Identical replicas by x-ray lithography, simultaneous transfer of a fine pattern on two complementary or, 70
Instrument comparison and application, automatic defect detection:, 76
Integrated circuit (IC) masks, pellicle protection of, 23
Intense x-ray source for fine line lithography, prospects of a plasma focus device as an, 44

Kilocycles, plasma etching 1 μ phosphorous-doped polysilicon geometries at 30, 203

Laser scanning autoalignment in projection system 35
Lift-off process for 1 micron Al/5% Cu lines, simple metal, 143
Line lithography, prospects of a plasma focus device as an intense x-ray source for fine, 44
Lines, simple metal lift-off process for 1 micron Al/5% Cu, 143
Linewidth control including multiple wavelength exposure and chromatic aberration, factors affecting, 110
Linewidth determination using electron microscopy, quantitative sub-micrometer, 100
Lithography, prospects of a plasma focus device as an intense x-ray source for fine line, 44
Lithography, pulsed plasma source for x-ray, 52
Lithography in the region of one micrometer, comparison of electron beam and optical projection, 117
Lithography, simultaneous transfer of a fine pattern on two complementary or identical replicas by x-ray, 70
Lithography?, submicron optical, 9
Lithography, toward submicron, 2
Location error, simulation of edge, 122

Mask fabrication using electron beam exposure system, 62
Masks, pellicle protection of integrated circuit of (IC), 23
Materials for high resolution photolithography, resist, 164
Metal lift-off process for 1 micron Al/5% Cu lines, simple, 143
Micrometer linewidth determination using electron microscopy, quantitative sub-, 100
Microscopy, quantitative sub-micrometer linewidth determination using electron, 100
Microwave curing: Is it a reality?, 192
Multilevel resist for photolithography utilizing an absorbing dye: simulation and experiment, 128
Multiple wavlength exposure and chromatic aberration, factors affecting linewidth control including, 110

Negative: a photoresist analysis, positive versus, 156
New positive photoresist for critical dimension control, 173

Off process for 1 micron Al/5% Cu lines, simple metal lift-, 143
1 micron A1/5% Cu lines, simple metal lift-off process for, 143
1 μ phosphorous-doped polysilicon geometries at 30 kilocycles, plasma etching, 203

Optical encoder, precision wafer stepper utilizing a two-dimensional, 29
Optical lithography?, submicron, 9
Optical projection lithography in the region of one micrometer, comparison of electron beam and, 117

Pellicle protection of integrated circuit (IC) masks, 23
Phosphorous-doped polysilicon geometries at 30 kilocycles, plasma etching 1 μ, 203
Photolithography, resist materials for high resolution, 164
Photolithography utilizing an absorbing dye: simulation and experiment, multilevel resist for, 128
Photomasks and reticles, cleaning of chromium on glass, 211
Photoresist analysis, positive versus negative: a, 156
Photoresist behavior of polychrome positive resist, electron beam resist and, 182
Photoresist for critical dimension control, new positive, 173
Photoresist, single and dual wavelength exposure of, 17
Photoresists, puddle development of positive, 187
Plasma etching 1 μ phosphorous-doped polysilicon geometries at 30 kilocycles, 203
Plasma focus device as an intense x-ray source for fine line lithography, prospects of a, 44
Plasma source for x-ray lithography, pulsed, 52
Polychrome positive resist, electron beam resist and photoresist behavior of, 182
Polysilicon geometries at 30 kilocycles, plasma etching 1 μ phosphorous-doped, 203
Positive photoresist for critical dimension control, new, 173
Positive photoresists, puddle development of, 187
Positive resist, electron beam resist and photoresist behavior of polychrome, 182
Positive versus negative: a photoresist analysis, 156
Precision wafer stepper utilizing a two-dimensional optical encoder, 29
Process for 1 micron Al/5% Cu lines, simple metal lift-off, 143
Processing of deep-ultraviolet (UV) resists, 150
Projection lithography in the region of one micrometer, comparison of electron beam and optical, 117
Projection system, laser scanning autoalignment in, 35
Prospects of a plasma focus device as an intense x-ray source for fine line lithography, 44
Protection of integrated circuit (IC) masks, pellicle, 23
Puddle development of positive photoresists, 187
Pulsed plasma source for x-ray lithography, 52

Quantitative sub-micrometer linewidth determination using electron microscopy, 100

Reality?, microwave curing: Is it a, 192
Replicas by x-ray lithography, simultaneous transfer of a fine pattern on two complementary or identical, 70
Resist, electron beam resist and photoresist behavior of polychrome positive, 182
Resist materials for high resolution photolithography, 164
Resist for photolithography utilizing an absorbing dye: simulation and experiment, multilevel, 128
Resist and photoresists behavior of polychrome positive resist, electron beam, 182
Resist technology, deep-ultraviolet (UV) source for two-level, 136
Resists, processing of deep-ultraviolet (UV), 150
Resolution photolithography, resist materials for high, 164
Reticles, cleaning of chromium on glass photomasks and, 211

Scanning autoalignment in projection system, laser, 35
Simple metal lift-off process for 1 micron Al/5% Cu lines, 143
Simulation of edge location error, 122
Simulation and experiment, multilevel resist for photolithography utilizing an absorbing dye:, 128
Simultaneous transfer of a fine pattern on two complementary or identical replicas by x-ray lithography, 70
Single and dual wavelength exposure of photoresist, 17
Source for fine line lithography, prospects of a plasma focus device as an intense x-ray, 44
Source for two-level resist technology, deep-ultraviolet (UV), 136
Source for x-ray lithography, pulsed plasma, 52
Stepper utilizing a two-dimensional optical encoder, precision wafer, 29
Submicron lithography, toward, 2
Submicron optical lithography?, 9
Sub-micrometer linewidth determination using electron microscopy, quantitative, 100
System, automated wafer flatness characterization, 92

Technology, deep-ultraviolet (UV) source for two-level resist, 136
Test sequence for the electron beam exposure system, comprehensive, 55
30 kilocycles, plasma etching 1 μ phosphorous-doped polysilicon geometries at, 203
Toward submicron lithography, 2
Transfer of a fine pattern on two complementary or identical replicas by x-ray lithography, simultaneous, 70
Two complementary or identical replicas by x-ray lithography, simultaneous transfer of a fine pattern on, 70
Two-dimensional optical encoder, precision wafer stepper utilizing a, 29
Two-level resist technology, deep-ultraviolet (UV) source for, 136

Ultraviolet (UV) resists, processing of deep-, 150
Ultraviolet (UV) source for two-level resist technology, deep-, 136
Utilizing an absorbing dye: simulation and experiment, multilevel resist for photolithography, 128

Versus negative: a photoresist analysis, positive, 156

Wafer flatness characterization system, automated, 92
Wafer stepper utilizing a two-dimensional optical encoder, precision, 29
Wavelength exposure and chromatic aberration, factors affecting linewidth control including multiple, 110
Wavelength exposure of photoresist, single and dual, 17

X-ray lithography, pulsed plasma source for, 52
X-ray lithography, simultaneous transfer of a fine pattern on two complementary or identical replicas by, 70
X-ray source for fine line lithography, prospects of a plasma focus device as an intense, 44